

AD737738

AFOSM-TR-72-0478 FINAL TECHNICAL REPORT
January 10, 1972

ARPA Order Number: 858
Program Code Number: 6D20 &
9D20 (Amnd. #2)
Name of Contractor: James E. Ross
R. K. Gillespie
Effective Date of Contract: 10 August 1966
Contract Expiration Date: 9 August 1971, originally 9 February 1971

[REDACTED]

Contract Number: AF-AFOSR-1229-67
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Short Title of Work: Cross-Cultural Communication Through
Nonverbal Behavior

Sponsored By
Advanced Research Projects Agency
ARPA Order No. 858

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Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) The Langley Porter Neuropsychiatric Institute Department of Mental Hygiene San Francisco, California 94122		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	
3. REPORT TITLE CROSS-CULTURAL COMMUNICATION THROUGH NONVERBAL BEHAVIOR			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Scientific Final			
5. AUTHOR(S) (First name, middle initial, last name) Paul Ekman			
6. REPORT DATE 10 January 1972		7a. TOTAL NO. OF PAGES 5	7b. NO. OF REFS 7
8a. CONTRACT OR GRANT NO. AF-AFOSR-1229-67 (ARPA)		9a. ORIGINATOR'S REPORT NUMBER(S)	
b. PROJECT NO. 0858			
c. 61101D		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AFOSR - TR - 72 - 0478	
d. 681313			
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES TECH, OTHER		12. SPONSORING MILITARY ACTIVITY Air Force Office of Scientific Research 1400 Wilson Boulevard (NL) Arlington, Virginia 22209	
13. ABSTRACT In seven cultures there are the same facial expressions of emotion. It appears that the same muscular movements may be related to the same emotions for all mankind. Most gestures are culturally specific, although there are a few which are multi-cultural. In these, the same movement is associated with the same message. () ←			

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January 10, 1972

1. TECHNICAL PROBLEM:

- A. To determine if there are any universal facial expressions of emotion.
- B. To develop and validate a procedure for measuring facial expressions of emotion.
- C. To explore differences in gestures across cultures.
- D. To examine the relationship between different measures of emotion -- facial expression, heart rate, skin resistance.

2. GENERAL METHODOLOGY:

A. Universal Facial Expressions Research:

1. Show standard photographs of facial expressions to members of different cultures, requiring them to identify the emotion shown in each face.
2. Record on videotape spontaneous facial expressions of emotion by Japanese and American subjects while they observe stressful and neutral films.

B. Facial Measurement Research:

Construct an atlas of the facial muscular movements relevant to emotion. To validate the atlas by showing that it will predict the social impressions conveyed by facial expression and the conditions under which facial expressions are emitted by a person.

C. Gesture Research:

Require subjects in different cultures to enact specific gestures which are recorded on videotape.. Analyze for similarities and differences.

D. Relationship Among Emotional Measures Research:

Compare the relationship between facial expression, skin resistance, and heart rate on Japanese and American subjects in response to viewing neutral and stress films.

3. TECHNICAL RESULTS:

A. Universal Facial Expressions:

In research in seven cultures, both literate and pre-literate, we have conclusively settled a controversial issue proving that there are a set of universal facial expressions of emotion. The same muscular movements are related to the same emotions for all mankind. This research has been the subject of keen international interest. The results of this research have been presented at three international meetings. The results of this research

January 10, 1972

have been reported in two scientific articles:

Ekman, Paul; E. Richard Sorenson; Wallace V. Friesen.
"Pan-cultural elements in facial displays of emotion,"
SCIENCE, 1969, Vol. 164, pages 86-88;

Ekman, Paul & Wallace V. Friesen. "Constants across
cultures in the face and emotion," JOURNAL OF PERSONALITY
AND SOCIAL PSYCHOLOGY, 1971, Vol. 17, No. 2, pages 124-
129.

The results of this research have also been reported in an invited chapter
in the NEBRASKA SYMPOSIUM ON MOTIVATION, 1972:

Ekman, Paul. "Universals and cultural differences in facial
expressions of emotion," to appear in James Cole (Ed.),
NEBRASKA SYMPOSIUM ON MOTIVATION, 1972, in press.

The results of this research have also been reported in our first two
books:

Ekman, Paul; Wallace V. Friesen; Phoebe Ellsworth.
EMOTION IN THE HUMAN FACE: GUIDELINES FOR RESEARCH AND
AN INTEGRATION OF FINDINGS, Pergamon Press, Inc.: New York,
1972.

DARWIN AND FACIAL EXPRESSION. Paul Ekman, Editor. Academic Press, New York,
1972.

B. Facial Measurement:

We have completed the initial steps to validate this facial measurement
procedure. The first results are reported in an article published last
year:

Ekman, P.; Friesen, W. V.; & Tomkins, S.S. "Facial Affect Scoring
Technique: A first validity study," SEMIOTICA, 1971, Vol. 3,
No. 1, pages 37-58.

This measurement procedure has been of considerable interest to a number of
investigators and research is continuing on its development.

C. Gestures Across Cultures:

We have completed our survey of gestures and substantiated our major
hypothesis that while most gestures are culture specific there are a
few which are multi-cultural, when the same movement is associated with
the same message. These multi-cultural gestures refer to fundamental
activities which can be performed in only a limited number of ways because
of constraints in the human anatomy. This work has not as yet been
published.

January 10, 1972

D. Relationships Among Measures of Emotion:

We have shown that there is a different pattern of heart rate and skin resistance associated with spontaneous facial expressions of surprise and disgust. This is the first time anyone has examined a moment-to-moment interrelationship between these three measures of emotion. Our results tend to confirm the predictions of Lacey and have opened up fundamental questions for further research on the nature of emotion.

Results are reported in the manuscript:

Ekman, Paul; Malmstrom, Edward J; & Friesen, Wallace V.
"Heart rate changes with facial displays of surprise
and disgust." Unpublished manuscript, September, 1971.

4. DEPARTMENT OF DEFENSE IMPLICATIONS:

The discovery of universal facial expressions of emotions and the development and validation of the Facial Affect Scoring Technique provide the basis for systematically teaching emotional expression and recognition to military personnel who must deal with personnel from other cultures.

5. IMPLICATIONS FOR FURTHER RESEARCH:

The major untapped problem is to discover and specify how different cultures produce an overlay which can conceal the universal facial expressions of emotion. We have both the conceptual and methodological tools to pursue this matter, but this would require further funding.

6. SPECIAL COMMENTS:

As this is a final report, it is worth noting the unusually high payoff from this fundamental basic research program on cross-cultural studies of nonverbal behavior. The research on facial expression has settled a controversial issue in the behavioral sciences which has been in dispute for over a hundred years. This issue has now been resolved. The wide interest in this issue can be seen by the fact that it has been the subject of two submitted publications, one invited publication, two books and three international conferences. The discovery of these universal facial expressions and the methodologies involved have led to a number of immediate and applied findings. Let us specify these.

- a) The development of facial measurement procedure has been of use in the study of nonverbal behavior in psychiatric patients. This research is currently supported by an NIMH research grant.
- b) The facial measurement procedure has also been of utility in developing means for training people to better interpret and recognize emotional expressions. This research is the subject of a grant proposed to NIMH.

January 10, 1972

- c) Another spinoff is the development of means to assess individual differences in the ability to recognize facial expression and how this might be mediated by psychoactive drugs. This research is now supported by a grant from the Narcotics & Drug Abuse Section of NIMH.
- d) This research has also led to new fundamental research on the relationship among various measures of emotion. This is now the subject of a proposed grant under review by NIMH.
- e) Findings from this cross-cultural research have also led to methodological breakthroughs which allow new ways of investigating the impact of television violence on children. This research was supported by a contract from the Surgeon General's Committee on Television and Social Behavior and is also the subject of a new pending grant proposal.
- f) The development of methodologies for study of behavioral stereotypes unique to brain damage in children. This research is the subject of a grant proposed to NICHD of NIH.

Although undertaken as basic research, the findings from this cross-cultural study have led to discoveries and methodologies which now have applications to such widely diverging problems as the impact of television and violence on five year old children, the effects of marijuana on adults, diagnosing mental illness in adults, detecting the occurrence of deception in interviews with adults, and diagnosing brain damage in children.